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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER BOLOURCHIL, NADER				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary**Application No.**

10/537,598

Applicant(s)LINNARTZ, JOHAN PAUL MARIE
GERARD**Examiner**

NADER BOLOURCHI

Art Unit

2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 June 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 June 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for foreign priority filed in European Patent Office on 12/09/2002 under 35 U.S.C. 119(a)-(d).
2. It is noted that this application appears to claim subject matter disclosed in prior Application No. PCT/IB03/50020, filed 11/06/2003. A reference to the prior application must be inserted as the first sentence(s) of the specification of this application or in an application data sheet (37 CFR 1.76), if applicant intends to rely on the filing date of the prior application under 35 U.S.C. 119(e), 120, 121, or 365(c). See 37 CFR 1.78(a). For benefit claims under 35 U.S.C. 120, 121, or 365(c), the reference must include the relationship (i.e., continuation, divisional, or continuation-in-part) of all nonprovisional applications. If the application is a utility or plant application filed under 35 U.S.C. 111(a) on or after November 29, 2000, the specific reference to the prior application must be submitted during the pendency of the application and within the later of four months from the actual filing date of the application or sixteen months from the filing date of the prior application. If the application is a utility or plant application which entered the national stage from an international application filed on or after November 29, 2000, after compliance with 35 U.S.C. 371, the specific reference must be submitted during the pendency of the application and within the later of four months from the date on which the national stage commenced under 35 U.S.C. 371(b) or (f) or sixteen months from the filing date of the prior application. See

Art Unit: 2611

37 CFR 1.78(a)(2)(ii) and (a)(5)(ii). This time period is not extendable and a failure to submit the reference required by 35 U.S.C. 119(e) and/or 120, where applicable, within this time period is considered a waiver of any benefit of such prior application(s) under 35 U.S.C. 119(e), 120, 121 and 365(c). A benefit claim filed after the required time period may be accepted if it is accompanied by a grantable petition to accept an unintentionally delayed benefit claim under 35 U.S.C. 119(e), 120, 121 and 365(c). The petition must be accompanied by (1) the reference required by 35 U.S.C. 120 or 119(e) and 37 CFR 1.78(a)(2) or (a)(5) to the prior application (unless previously submitted), (2) a surcharge under 37 CFR 1.17(t), and (3) a statement that the entire delay between the date the claim was due under 37 CFR 1.78(a)(2) or (a)(5) and the date the claim was filed was unintentional. The Director may require additional information where there is a question whether the delay was unintentional. The petition should be addressed to: Mail Stop Petition, Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

If the reference to the prior application was previously submitted within the time period set forth in 37 CFR 1.78(a), but not in the first sentence(s) of the specification or an application data sheet (ADS) as required by 37 CFR 1.78(a) (e.g., if the reference was submitted in an oath or declaration or the application transmittal letter), and the information concerning the benefit claim was recognized by the Office as shown by its inclusion on the first filing receipt, the petition under 37 CFR 1.78(a) and the surcharge under 37 CFR 1.17(t) are not

required. Applicant is still required to submit the reference in compliance with 37 CFR 1.78(a) by filing an amendment to the first sentence(s) of the specification or an ADS. See MPEP § 201.11.

Drawings

3. The drawing is objected to because the rectangular boxes shown in the drawings should be provided with descriptive text. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Art Unit: 2611

4. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, "time delay" recited in claim 6 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement-drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

5. The following informality has been noted and requires correction in response to this Office Action. Since figures must be numbered separately, i.e.

Art Unit: 2611

"Figure 1A," "Figure 1B," etc. Applicant is required to amend the Brief Description of the Drawings in Applicant's disclosure accordingly to reflect the proper figure designations which are in formal drawings when drawings are submitted.

Specification

6. The disclosure is objected to because of the following informalities: replace phrase "system 1" with -- receiver 1 -- in lines 4, 6 and 10 to avoid ambiguity and vagueness .

Appropriate correction is required.

Claim Objections

7. Claims 1 and 4 are objected to because of the following informalities: replace phrase "are" with - is - in line 4 of claim 1 and in line 3 of claim 4.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8. Claim 6 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 6 recites the limitation "the system (1)" in line 2. There is insufficient antecedent basis for this limitation in the claim. Does applicant mean to further claim the receiver details? If yes, then phrase "the system (1)" should be replaced with -- the receiver --.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claims 1-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Chennakeshu et al. (US 6,137,843 A).

Regarding claim 1, Chennakeshu et al. disclose diversity receiver having multiple antenna receiving branches (col. 13: lines 40-59), characterized in that

Art Unit: 2611

each branch (branches between r_a with C_a and D_a in Fig. 8) has means for estimating (Fig. 8: 811) at least a receiving channel parameter (Fig. 8: C_a), and that the channel parameter estimating means in one branch (Fig. 8: 811) are coupled (811 is coupled to 812 through 821 and 801 as shown in Fig. 8) to the channel parameter estimating means in an other branch (Fig. 8: 812) for using at least a part of the channel parameter estimate in the one branch (C_a through 821 and 801 is input to 812 in Fig. 8) as an aid for estimating at least a receiving channel parameter (Fig. 8: D_a) in the other branch.

Regarding claim 2, Chennakeshu et al. disclose as stated in the rejection of claim 1 above. Chennakeshu et al. also disclose that the channel parameter estimate in the one branch (Fig. 8: C_a) is used as a starting point for the channel parameter estimate in the other branch (C_a is input of 821 which is in combination with 801 and 812 generates D_a).

Regarding claim 3, Chennakeshu et al. disclose as stated in the rejection of claim 1 above. Chennakeshu et al. also disclose that the channel parameter estimate in the one branch provides a coarse channel parameter estimate (Fig. 8: C_a), which coarse channel parameter estimate is used as a start for the channel parameter estimate in the other branch (C_a is input of 821 which is in combination with 801 and 812 generates D_a).

Regarding claim 4, Chennakeshu et al. disclose as stated in the rejection of claim 1 above. Chennakeshu et al. also disclose that the estimating means in the other branch (Fig. 8: 812) are coupled to the estimating means in said one branch (812 is coupled to 811 through 821 and 801 as shown in Fig. 8) for using at least a part of the channel parameter estimate in the other branch as an aid for estimating the receiving parameter channel in said one branch (C_a is input of 821 which is in combination with 801 and 812 generates D_a).

Regarding claim 5, Chennakeshu et al. disclose as stated in the rejection of claim 1 above. Chennakeshu et al. also disclose that the diversity receiver has two antenna receiving branches (col. 13: lines 40-59).

Regarding claim 6, Chennakeshu et al. disclose as stated in the rejection of claim 1 above. Chennakeshu et al. also disclose that the receiver (the system (1) is interpreted as the receiver) is arranged for estimating a time delay between the appearance of a certain channel parameter estimate in the various branches (time delay which inherently exist between appearance of C_a and D_a of Fig. 8, because C_a has to be calculated first).

Regarding claim 7, Chennakeshu et al. disclose as stated in the rejection of claim 1 above. Chennakeshu et al. also disclose a mobile radio communication device (col. 1: lines 19-32) provided with a diversity receiver having multiple antenna receiving branches (col. 13: lines 40-59), that each branch (branches

between r_a with C_a and D_a in Fig. 8) has means for estimating at least a receiving channel parameter (Fig. 8: 811), and that the channel parameter estimating means in one branch are coupled to the channel parameter estimating means in an other branch (811 is coupled to 812 through 821 and 801 as shown in Fig. 8) for using at least a part of the channel parameter estimate in the one branch as an aid for estimating at least a receiving channel parameter in the other branch (C_a is input of 821 which is in combination with 801 and 812 generates D_a).

Regarding claim 8, Chennakeshu et al. disclose method wherein a signal is received through multiple antenna receiving branches (Fig. 8: r_a), characterized in that in each branch (branches between r_a with C_a and D_a in Fig. 8) an estimation is made about a received channel (Fig. 8: 811 and 812), and that channel estimation results from one branch (Fig. 8: C_a) are being used as an aid (C_a through 821 and 801 is input to 812 in Fig. 8) for estimating the received channel in an other branch (Fig. 8: D_a).

Regarding claim 9, Chennakeshu et al. disclose as stated in the rejection of claim 8 above. Chennakeshu et al. also disclose that a signal is received (Fig. 8: r_a) through multiple antenna receiving branches (col. 13: lines 40-59), characterized in that in each branch an estimation is made about a received channel, and that channel estimation results from one branch are being used as an aid for estimating the received channel in an other branch (C_a is input of 821 which is in combination with 801 and 812 generates D_a).

Art Unit: 2611

10. Claims 1-9 are rejected under 35 U.S.C. 102(e) as being anticipated by Paulraj et al. (US 7,058,146).

Regarding claim 1. Paulraj et al. disclose a diversity receiver (col. 8: lines 59-64) having multiple antenna receiving branches (Fig. 9: 82A ... 82X), characterized in that each branch has means for estimating (128, "CHANNEL ESTIMATE", and 132 in combination with FFT of Fig. 11) at least a receiving channel parameter ("DESIRED SIGNAL" in Fig. 11), and that the channel parameter estimating means in one branch ("channel 1" in Fig. 11) are coupled to the channel parameter estimating means in an other branch ("channel n" in Fig. 11) for using at least a part of the channel parameter estimate in the one branch ("FFT" 126 of "channel 1") as an aid for estimating at least a receiving channel parameter in the other branch ("FFT" 130 of "channel n")

Regarding claim 8. Paulraj et al. disclose a method wherein a signal is received (Fig. 9: 82) through multiple antenna receiving branches (Fig. 9: 82A ... 82X), characterized in that in each branch an estimation is made about a received channel, and that channel estimation results from one branch (output of "CHANNEL ESTIMATE" due to "channel 1" in Fig. 11) are being used as an aid for estimating the received channel in an other branch ("DESIRED SIGNAL" due to "channel n" in Fig. 11)

Remarks

11. No claim is allowed.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kung et al. (US 6,999,538 B2); Chuang et al. (US 7,099,413 B2).

Contact Information

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nader Bolourchi whose telephone number is (571) 272-8064. The examiner can normally be reached on M-F 8:30 to 4:30.

14. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David. C. Payne can be reached on (571) 272-3024. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

15. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR

Art Unit: 2611

system, contact the Electronic Business Center (EBC) at (866) 217-9197 (toll-free).

/Nader Bolourchi/

Examiner, Art Unit 2611

3/18/2008

/David C. Payne/

Supervisory Patent Examiner, Art Unit 2611